

## Claims

- [1] An apparatus for repeating a signal from a satellite to a mobile station in a shadow area, the apparatus comprising:  
means for receiving the signal and amplifying the received signal;  
means for radiating the amplified signal to the shadow area; and  
means for feeding the amplified signal to the radiating means.
- [2] The apparatus of claim 1, wherein the receiving means includes:  
a microstrip patch array antenna for receiving the signal from the satellite; and  
an amplifier for amplifying the received signal from the microstrip patch array antenna.
- [3] The apparatus of claim 2, wherein the radiating means is installed in the shadow area.
- [4] The apparatus of claim 2, wherein the microstrip patch array antenna and the amplifier are implemented as one piece and further includes a probe for transiting the signal received from the microstrip patch array antenna to the amplifier.
- [5] The apparatus of claim 1, wherein the radiating means is one directional microstrip patch array antenna.
- [6] The apparatus of claim 5, wherein the shadow area is an overpass.
- [7] The apparatus of claim 1, wherein the receiving means is located at a position where a line of sight to the satellite is secured.
- [8] The apparatus of claim 1, wherein the radiating means includes:  
a dual directional antenna provided with a first microstrip patch array antenna and a second microstrip patch array antenna; and  
means for dividing the signal received from the receiving means to a first portion and a second portion, and passing the first portion to the first microstrip patch array antenna and the second portion to the second microstrip patch array antenna.
- [9] The apparatus of claim 8, wherein the shadow area is an underpass.